

No. 4

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# Choosing and Using Concrete Blocks

**There's a size and shape that's  
just right for every building job**

# Here are the basic facts about

*Concrete blocks have blossomed out. They're no longer the ugly ducklings of the building trade. You can now buy blocks with handsome surface textures and in dozens of sizes and shapes. They're designed not only for eye appeal but for practically every wall-construction need.*

*Besides these new advantages, concrete blocks retain two old advantages for the home handyman: 1) They're easy to use; 2) they cost less than brick or stone.*

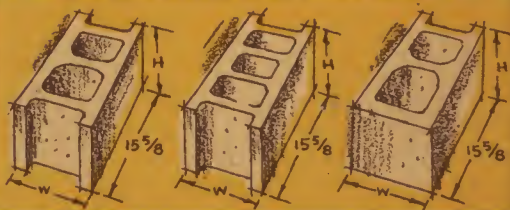
## What they're made of

Concrete blocks may be either heavyweight (between 40 and 50 pounds for a standard 8"-by-8"-by-16" unit) or lightweight (25 to 35 pounds). The heavyweights are made of portland cement and water, mixed with such aggregates as sand, gravel or crushed rock. While they provide high load-bearing strength, they are less popular today than the lightweight blocks.

## These are the most

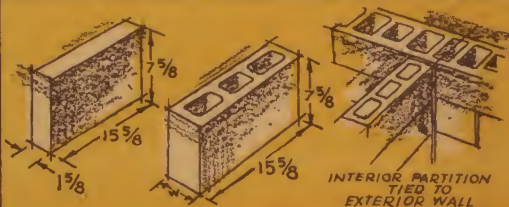
### STANDARD WALL

Two- and three-core standard wall blocks come in 8", 10" and 12" nominal widths. Examples shown (two of each) are half-hollow-ended stretchers, corner types, and double-corner types.



### PARTITION-WALL and BRICK

Solid, partition-wall blocks and cored blocks of 4" and 6" nominal width are used also for cavity walls and floor slabs. Brick (far right) may have frog (mortar recess) or flat face.



# CONCRETE BLOCKS

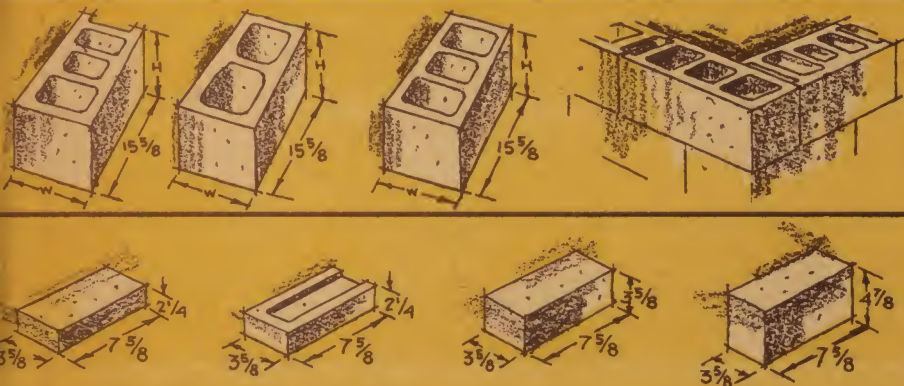
The lightweights are also made with cement and water, but the aggregate is cinders (causing many people to refer to all blocks as cinder blocks), expanded shale, clay, pumice, or some other lightweight material. Besides being easier to handle than the heavyweights, they give better insulation against both heat and sound. They are also more attractive in texture, and provide a better bond for stucco veneer, paint, and other surface treatments.

## Sizes and shapes

While some concrete blocks in the smaller sizes are molded solid like brick, the majority of the larger blocks are cored. The most common of these hollow blocks has a face that is nominally 8" high and 16" long (actually  $7\frac{5}{8}"$  by  $15\frac{5}{8}"$  to allow for  $\frac{3}{8}"$  mortar joints). Its nominal width can be 8", 10" or 12".

*Stretchers* make up the bulk of any conventional wall. For any special

## common types of blocks

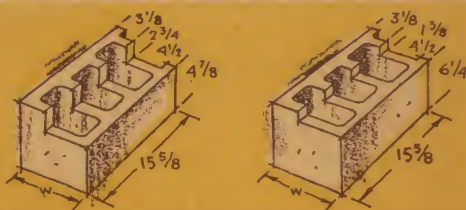




# These blocks solve special

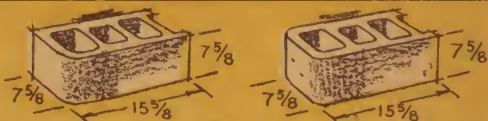
## FULL and HALF HEADERS, HALF CAP and CAP

Headers tie in floor joists, bond brick facing to block walls. Half caps seal exposed part of course below a wall step-in. Cap blocks top standing walls.



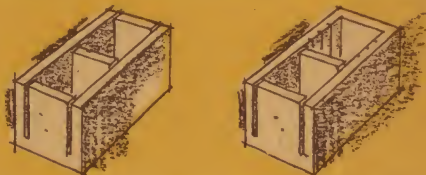
## BULL-NOSE WALL

Bull-nose blocks take the place of standard corner blocks for rounded corners, columns, etc.



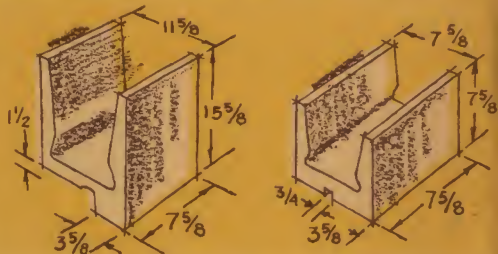
## BOND BEAM

Designed to tie a wall together at the top, bond-beam blocks provide either knockouts or open channels for reinforcing rods and poured concrete.



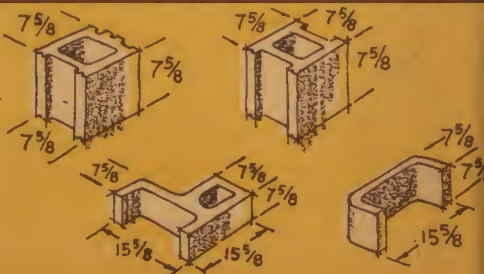
## LINTEL

Used over doors and windows, lintel blocks have recesses for sash or frames. They come in single and double height for short- or long-span openings. Mating bond blocks continue channels over adjacent walls.

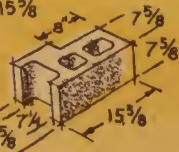
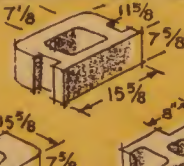
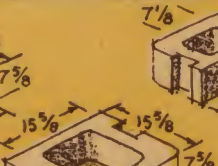
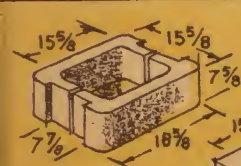
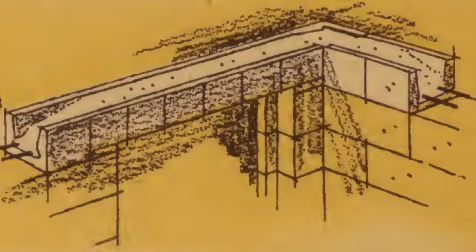
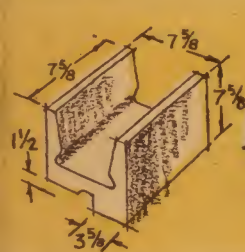
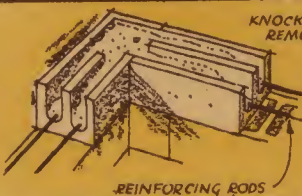
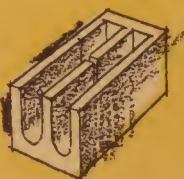
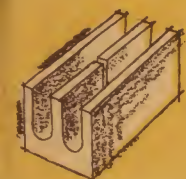
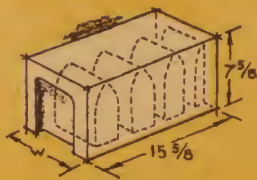
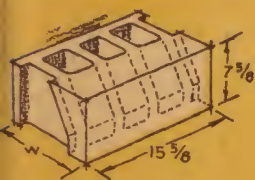


## CONTROL JOINT and PILASTER

Tongue-and-groove mating of control-joint blocks lets large walls expand and contract (the joints are sealed with calking). Pilaster blocks increase stability of load-bearing walls. Some, like those here, have recesses in the ends for control joints.

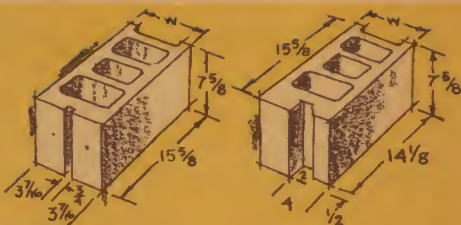


# wall-building problems



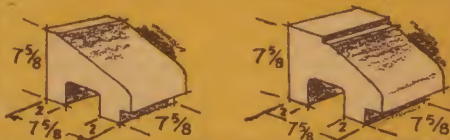
### CONVENTIONAL SASH and JAMB

Recessed at one end to accommodate either metal sash, frames or jambs, these blocks come in standard and half-block sizes. Bull-nose sash and jamb blocks are also available.



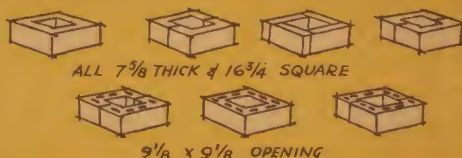
### SILL

Used below windows, sill blocks have top faces designed for (left to right) standard wood frames, metal frames, broad stools.



### CHIMNEY

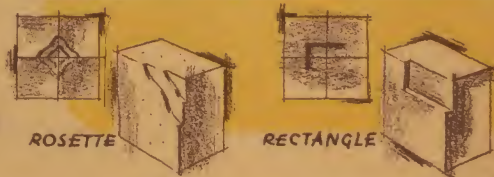
Combinations of chimney blocks will accommodate three standard sizes of chimney tile, a cylindrical flue, or multiple flues.



problems, however, as for corners, you may need one or more variations. Most large lumberyards can supply you with a wide selection—half-blocks and blocks with one or two flat ends, blocks with one or two corners rounded, and blocks with special

recesses for door jambs, window casings, glass-brick inserts, and steel or poured-concrete reinforcing cores. Among the solid types of blocks are small bricklike units and coping sections, together with several kinds of ornamental blocks.

## Off-size and textured blocks

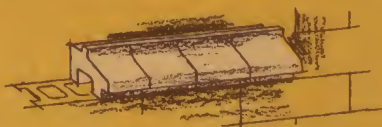
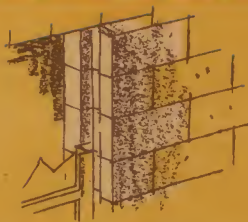
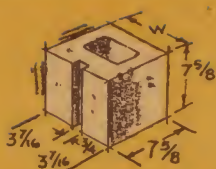
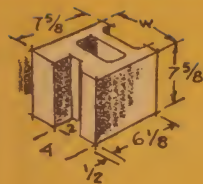


When planning a home improvement, you may want to consider some of the many ornamental concrete blocks that are available. A unit that is similar to the standard block, but only half as high (4"), gives a pleasing, modern wall effect when the horizontal joints are accented. Square stretchers with one corner recessed

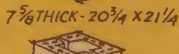
are also available. Grouped in fours, they produce rosette, rectangle or diamond patterns. For a unit with unusual texture, you might go for one of two newcomers in the field—split block or slump block.

The split block has a rough face and is unusually long and thin, but its base dimensions are standard.





9 1/8 x 13 5/8 OPENING



13 5/8 x 13 5/8 OPENING



8 1/2 FLUE-16X16X7 5/8 THICK CHIMNEY TILE



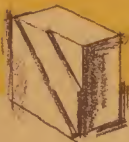
PARTITION BLOCK

A look at the blocks on these pages will familiarize you with their names, sizes and uses. But before you start on any concrete-block project, check with the suppliers in your neighborhood to find out what sizes are available or can be ordered for you. Then

plan your work to conform with the block dimensions. It's a waste of time to make a fireplace some odd length, or to set a door in some arbitrary spot, and then have to chip or cut off blocks to fit. With a bit of foresight, you eliminate such problems.



DIAMOND



SLUMP BLOCK



SPLIT BLOCK



Slump block is a peculiar offering with a remarkably unblocklike appearance. It is made from a concrete mix that causes the units to sag or slump when they are taken from the molds. Both height and texture vary enough to give a rugged, informal look.

For still more variety, blocks are

offered in soft pastel shades (usually greens and browns). Unlike blocks that are painted on the outside after they are set up, these need no further maintenance: The color is cast right into them. Special blocks with hard-glazed, waterproof faces similar to tile are also on the market. Some are glazed on both faces.

# RULES for building with blocks

*Concrete blocks are inexpensive and easy to handle. Professional masons will tell you that they stack up three times faster than brick, and with less than half the mortar. Here are a few simple block-building rules. Follow them and you'll be sure of a strong, workmanlike wall, even if you've never tried using blocks before.*

## 1 Always rest a block on a solid footing

It's important to provide a solid base for a block wall, not only for strength but to seal out moisture from below. Make the footing of poured concrete. For a fireplace, indoors or out, this takes the form of a large concrete pad. The footing for a regular wall should be placed below frost line. Make it as deep, and twice as wide, as the wall is thick. Center the wall on this footing for equal load distribution.

## 2 Use dry blocks

If you must store blocks outdoors before using them, protect them from the rain with a tarp or some building paper. Wet blocks expand. If you set them up in this condition they will shrink when drying, giving you weak, possibly leaky joints.

## 3 Choose the right mortar mix

For most purposes a good mortar mix is one part masonry cement and three parts' sand. For an extra-

strength mortar, as for a high retaining wall, use only two or three parts' sand to one part portland cement. In either case, mix with just enough water to give a plastic mix that clings nicely to the trowel and block, without being so soft that it squeezes down too much when you lay the block. Test the consistency of the mix between a pair of blocks.

## 4 Cover the footing with a full bed of mortar

This insures a good bond for the first course of blocks. Before you place each block after the first one, butter one end of it with mortar and squeeze it against the preceding block to give a  $\frac{3}{8}$ " joint. Use your trowel to cut off any mortar that oozes out, unless you want it to harden that way for an informal appearance.

## 5 End one course before starting another

It's a way to avoid inaccuracies. For the second and successive courses, spread mortar on top of the laid block in the area that the new one will cover—usually only along the front





Lay corner blocks first. Stretch string between them as face guide.

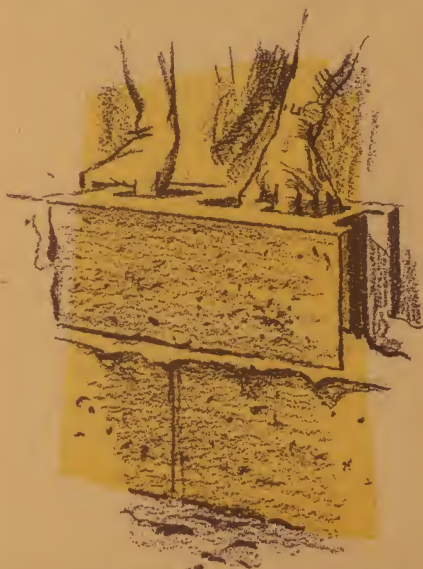
and back edges. To build a stronger wall, if needed, use full-bed joints. You get these by spreading mortar over the entire top surface of the cement block.

## 6 Make frequent checks with a level

Unless you are doing a job where joint irregularities are part of the decorative scheme, check each block lengthwise and from front to back with a level, as you go. Stretch a string from one end of the wall to the other to insure block alignment and use the level, vertically, for frequent plumb checks.

## 7 Don't use mortar that's gotten too old

Your mortar will stay usable for about two hours in hot weather, and



Apply mortar to block end before placing it.



Point formal-wall joints as soon as the mortar starts to stiffen.



To clean face, wipe with gunny sack, or scrape with wood.



True blocks with long level, or short one on straight 2"-by-4".

## RULES (continued)

a bit longer under cool conditions. Within those time limits you can retemper it by working it over with a shovel or trowel, adding a little water when needed. But when the mortar begins to lose its cohesiveness, don't try to make it "stretch." Throw it away and mix another batch.

### 8 Point joints, clean block faces as you go

As the mortar joints stiffen up, go back and wipe any spilled mortar from the faces of the blocks with a gunny sack. Then point up the joints the way you want them to look.

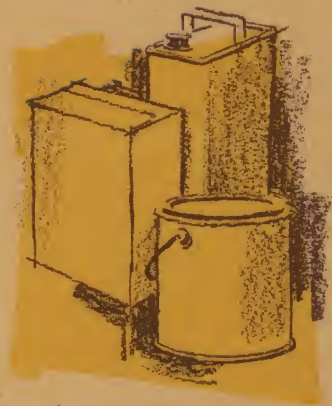
### 9 Now seal the top of the wall

It's important to seal off, or cap, the top of a hollow-block exterior wall, to keep out rain. Some manufacturers make solid block for this. If your dealer doesn't stock them, you can do the job by sandwiching strips of expanded metal lath in the last horizontal joint. After you lay the final course of blocks, plump mortar into the voids until you have filled them flush with the top of the wall.

A good way to bind a wall tightly together, and at the same time cap it, is to make the top course a bond beam. Use channel blocks with metal lath under them. Lay these blocks channel-side up, and fill the trough they form with concrete. By embedding two lengths of reinforcing rod in the concrete you can strengthen the cap still more.



Shake loose rock wool into voids for a highly insulative wall.



For color—you can use powdered or fluid cement paint, or stain.

## ... and for the **FINISH**

**Insulation.** When building house walls, you may want to insulate them. Dead air in the hollow blocks has considerable insulative value in itself. But for minimum heat loss, pour loose rock wool or vermiculite into the wall voids after laying each two or three courses. A wall treated this way is 20 percent more insulative than one of standard wood-and-plaster construction.

**Waterproofing and paint.** Low maintenance has always been a popular feature of concrete blocks. A painted block wall destroys part of this inherent feature, because it needs doing over from time to time. So if you are willing to settle for a natural shade, use silicone waterproofing liquid, instead. This is a permanent

finish, and adds to the life of the block. For small color modifications in either natural or tinted blocks, you can add a little color to the silicone waterproofing, converting it into a waterproof stain. Apply the liquid with a whitewash brush.

For stronger color, but still in the pastel range, use one of the old reliable portland-cement paints made especially for masonry. They come as a powder—basically cement plus pigment. You mix this with water and apply to a wall that has first been dampened with a fog spray from a hose nozzle. A variation of this is a simple wash of cement and water.

For really brilliant color, turn to the newer types of masonry paint. These may be oil-, rubber- or resin-emulsion-based. All of them are durable and easy to apply.



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